Leaving Certificate Biology Report 2021

The following report is prepared from observations forwarded to the Biology convenor by ISTA members.

General Comments on the 2021 Biology Higher Paper

This year's paper was considered fair by Biology teachers. The choice of questions for students in this difficult Covid year was considered good. A broad range of topics were examined. There was a nice balance between plant and animal biology. Questions were worded in a straightforward manner. The diagrams were mostly very clear.

Higher Level

Section A
The short questions were accessible and straightforward overall.

Q1 (a) – (f) Straightforward question on nutrition.

Q2 (a) – (d) Straightforward question on the nitrogen cycle. Concern was raised about part (e) – would students have noticed it / missed it as there is no answer box attached?

Q3. (a) – (g) Straightforward question on cell division.

Q4. (c) Will students be given marks for Active site theory or Induced fit model? Teachers were worried that students may be thrown by the diagram as many books illustrate the theory / model showing the active site changing shape.

Q5. (a) Concern was expressed that students may be confused by the depiction of A in the diagram – was the egg clear enough?
(c) Also concerned that diagrams B and C not distinctly different enough for students.
Overall a straightforward but testing question on human reproduction.

Q6. (a) – (g) Straightforward but testing question with a nice balance of plant and animal biology.

Q7. (a) – (e) Straightforward question on the musculoskeletal system.

Section B

The experiment questions were accessible and straightforward overall.
Specifying which experiments to expect in each question helped reduce greatly students' anxiety about this section.

Q8. A nice straightforward question on the scientific method and the isolation of DNA.

Q9. A straightforward question on the effect of heat denaturation and the effect of temperature on enzyme activity. The prompts in the answer boxes were a welcome addition to guide students e.g. Name of enzyme:, Test:, Control:.

Q10 Straightforward but testing question on investigating the growth of leaf yeast.

Section C

Students found the answer book a little confusing. They thought it would have been better if the graph paper was at the back.

Overall the questions were fair.

Q11. A nice straightforward ecology question.

(a) Concerned that students will be unfamiliar with cowslips.
(b) A testing comprehension question.
(c) Fair question on conservation and quantitative survey of an animal.

Q12. A testing question on genetics.

(a) (ii) may be difficult for students.
(b) Overall a nice genetic cross question. Concern was raised that part (v) will be misunderstood by many students.
(c) Straightforward question on genetic engineering.

Q13. A testing question on respiration and photosynthesis.

(a) Straightforward question.
(b) A testing question.
(ii) should the diagram have indicated "V + water" to eliminate water as an answer?
(c) Mostly straightforward photosynthesis question – some concern about part (iii) - "chlorophyll contains a number of chemicals.." – will the use of the word "chemical" cause confusion for students – they learn about there being different pigment molecules.

Q14. (a) (b) Straightforward questions on digestion.
(c) A nice question on transpiration and plant structure.

Q15. (a) A nice question on homeostasis and plant protection.
(b) A mostly straightforward question on plant reproduction.
(i) Concern was expressed about the clarity of part C in the diagram.
(c) Nice question on seeds

Q16. (a) Straightforward question on the skin.
(b) Straightforward question on the male reproductive system.
(c) A testing and timely question on the human immune system and viruses.
(d) Straightforward question on the breathing system.

Q17 (a) Straightforward question on Rhizopus.
(b) Straightforward question on Amoeba.
(c) A mostly straightforward question on the nervous system. Concern was raised that the use of the term tissue in part (i) would be confusing to students.
(d) Straightforward question on turgor, osmosis and using the microscope..

General Comments on the 2021 Biology Ordinary Level Paper

The choice of questions for students in this difficult Covid year was considered good. A good range of topics were examined, though plant biology was perhaps underrepresented. Questions were worded in a straightforward manner. The diagrams were mostly very clear.

Ordinary Level

Section A
The short questions were accessible and straightforward.

Q1 (a) – (e) Straightforward question on nutrition.

Q2. Straightforward question on cell diversity.

Q3. Straightforward question on human biology.

Q4. Straightforward question on genetics.

Q5. Timely question on viruses and immunity.

Q6. Straightforward question on ecology.

Q7. Straightforward question on the musculoskeletal system.

Section B

The experiment questions were accessible and straightforward overall.
Specifying which experiments to expect in each question helped reduce greatly students' anxiety about this section.

Q8. Straightforward question on the microscope.

Q9. Straightforward question on the effect of pH on enzyme activity.

Q10. Mostly straightforward. Concern was raised that the wording used in (b) (v) was difficult for OL students.

Section C

Overall the questions were fair.
Teachers expressed concern that the second Unit 2 question was divided over Q16 (c) and Q17. (b).

Q11. (a) Straightforward question on ecology definitions.
(b) (iii) Concern was expressed that students would find the wording of this part difficult – "ecological technique".
(c) Straightforward.

Q12. (a) Straightforward question on genetic terms.
(b) Mostly Straightforward DNA structure question. There was concern that students would find the wording of part (iv) difficult – "What happens structurally.."
(c) Straightforward question on cell division.

Q13. (a) and (b) Straightforward questions on blood and the heart.
(c) Challenging question on the circulatory system.

Q14. An accessible question on the digestive and endocrine systems.
(a) Straightforward.
(b) Straightforward.
(c) Straightforward.

Q15. Overall a clear question on plant biology, though wordy.
(a) Straightforward.
(b) Straightforward.
(c) Straightforward.

Q16. (a) A straightforward question on the ear.
(b) Mostly straightforward question on respiration.
(c) Straightforward question.
(d) Straightforward question.

Q17. (a) A straightforward question on human reproduction.
(b) Mostly straightforward question on photosynthesis.
(c) Straightforward question on bacteria.
(d) Mostly straightforward question on the nervous system. Concern was raised that students would be confused by the wording of part (v) – "Name the gap or region between two neurons". Students would probably have learned about where two neurons meet?

Rough Breakdown of questions asked from Units 1,2 and 3

Higher Level

Section A
Unit 1 – two questions – Q1 biomolecules, Q2 ecology
Unit 2 – two questions – Q3 cell division, Q4 enzymes
Unit 3 – two questions – Q5 human reproduction, Q7 musculoskeletal system
+ one question mixed (Q6)

Section C
Unit 1 – one question – Q11 ecology
Unit 2 – two questions – Q 12 genetics, Q13 metabolism, respiration, photosynthesis
Unit 3 – three questions – Q14 digestion, transport in plants, Q15 plant reproduction, Q16 skin, male reproductive system, immunity, breathing system,
+ Q17 fungi, amoeba, nervous system, turgor, osmosis, microscopy.

Ordinary Level

Section A
Unit 1 – two questions – Q1 biomolecules, Q6 ecology
Unit 2 – two questions – Q2 cell diversity, Q4 genetics
Unit 3 – two questions – Q3 human biology, Q5 immunity,
+ Q7 musculoskeletal system.

Section C
Unit 1 – one question – Q11 ecology
Unit 2 – two questions – Q12 genetics, respiration (16(b)) and photosynthesis (17 (b))
Unit 3 – three questions – Q13 circulatory system, Q14 digestive system and endocrine system, Q15 tropisms, transport in plants, gas exchange, Q16 the ear, plant reproduction, excretion.
+ Q17 human reproduction, bacteria and nervous system.

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